UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/516,082	03/01/00	MURAKAMI S	SEL163

EXAMINER

MM91/0808

Cook Alex Mcfarron Manzo
Cummings & Mehler LTD
200 West Adams ST
Suite 2850
Chicago IL 60606

LEE,F

ART UNIT	PAPER NUMBER
2815	

DATE MAILED:
08/08/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Offic Action Summary	Application No.	Applicant(s)	
	09/516,082	MURAKAMI ET AL.	
	Examiner	Art Unit	
	Eugene Lee	2815	

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 March 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) *35-41* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34 and 42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 March 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

   I. Claims 1 thru 34 and 42, drawn to semiconductor device, classified in class 257, subclass 532.

   II. Claims 35 thru 41, drawn to method of making a semiconductor device, classified in class 438, subclass 30.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as product made and the process of making. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process. For example, as an alternative to the methods set forth in claims 35-41, instead of forming each of the capacitor structures (i.e. first electrode, oxide film and second electrode) separately, one could form the structures together and then place it over a thin film transistor.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Mark Murphy on 4/3/01 a provisional election was made without traverse to prosecute the invention of device, claims 1-34, and 42. Affirmation of this election must be made by applicant in replying to this Office action. Claims 35-41 are

withdrawn from further consideration by the examiner, 37 CFR 1.142 (b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48 (b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied be a petition under 37 CFR 1.48 (b) and be the fee required under 37 CFR 1.17 (i).

Drawings

5. Fig. 27A should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: element 605. Correction is required.

Specification

7. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

8. Claim 3 is objected to because of the following informalities: the word "said" is spelled incorrectly. Appropriate correction is required.

9. Claim 24 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. => Claims 23 and 24 are identical.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

11. Claim 1 thru 10, 12, 14, 18, 20, 22 thru 25, 27 thru 29, and 31 thru 33 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhang et al. '461. Zhang discloses (see, for example, FIG. 2A) a CMOS circuit (semiconductor device) comprising a storage capacitor wherein the storage capacitor comprises a black matrix (first electrode) 124, inorganic layer (oxide film) 118, and pixel electrode (second electrode) 129. A second interlayer insulating film (organic resin film) 112 is formed underneath the black matrix. In column 10, lines 28-31, Zhang discloses that the inorganic layer may be silicon oxide. Regarding claim 2, see, for example, column 9, lines 59-*, where Zhang states that the second interlayer insulating film may have a laminated structure comprising of an insulating film made of an inorganic material and an insulating film made of an organic resin.

12. Claim 42 is rejected under 35 U.S.C. 102(e) as being anticipated by Zhong et al. '721. See, for example, FIG. 6(c).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claim 11, 13, 15, 19, 21, 26, 30, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki et al. '290 in view of Zhang et al. '461 in view of Kunii et al. '493. Miyazaki discloses (see, for example, FIG. 6) a semiconductor device comprising driver TFTs 1, 2 and pixel TFT 3 over a substrate. The lightly doped regions of the driver TFTs overlap the gate electrodes, contrary to the lightly doped regions of the pixel TFT. Miyazaki does not disclose a storage capacitor in the pixel matrix circuit. However, it was well known in the art at the time of invention to have storage capacitors associated with pixels in order to store charge. In column 1, lines 26-31, Zhang also states a storage capacitor will reduce the aperture ratio in a pixel. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have a storage capacitor in order to store charge in the pixel and reduce the aperture ratio.

Miyazaki in view of Zhang does not disclose that the impurity element in a lightly doped drain region in the driver circuit in a higher concentration than that in a lightly doped drain region of the pixel TFT. However, Kunii teaches (see, for example, column 15, lines 49-*) that

the lightly doped region near the picture element has a lower density than the other lightly doped regions, therefore, suppressing the leakage current. It would have been obvious to one of ordinary skill in the art at the time of invention to have a lower concentration in the pixel TFT so that one could suppress the leakage current.

15. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. '461 as applied to claims 1 thru 10, 12, 14, 18, 20, 22 thru 25, 27 thru 29, and 31 thru 33 above, and further in view of Zhong et al. '721. Zhang does not disclose color filters. However, it was well known in the art at the time of invention to place color filters in pixel circuits in order to filter out colors and show an image. See, for example, FIG. 1. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have a color filter in order to display the proper colors of a pixel.

16. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki et al. '290 in view of Zhang et al. '461 in view of Kunii et al. '493 as applied to claims 11, 13, 15, 19, 21, 26, 30, and 34 above, and further in view of Zhong et al. '721. Miyazaki in view of Zhang in view of Kunii does not disclose color filters. However, it was well known in the art at the time of invention to place color filters in pixel circuits in order to filter out colors and show an image. See, for example, FIG. 1. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have a color filter in order to display the proper colors of a pixel.

Product-by-Process Limitations

While not objectionable, the Office reminds Applicant that "product by process" limitations in claims drawn to structure are directed to the product, per se, no matter how actually made. *In re*

Hirao, 190 USPQ 15 at 17 (footnote 3). See also, *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wethheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); *In re Marosi et al.*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or otherwise. Note that applicant has the burden of proof in such cases, as the above case law makes clear. Thus, no patentable weight will be given to those process steps which do not add structural limitations to the final product.

Regarding claim 3, the following claim recite a limitation that does not offer any structural variation to the final product. Therefore, any language, such as "formed by sputtering" is given no patentable weight.

INFORMATION ON HOW TO CONTACT THE USPTO

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eugene Lee whose telephone number is 703-305-5695. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on 703-308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Eugene Lee
August 5, 2001

EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800